

Rider (G. E.)

CLINICAL OBSERVATIONS.

DR. RIDER,



*With the author's
compliments.*

CLINICAL OBSERVATIONS

IN THE

OPHTHALMIC DEPARTMENT

OF THE

ROCHESTER CITY HOSPITAL,

BY

CHARLES E. RIDER, A. M., M. D.,

Ophthalmic Surgeon to the City Hospital and St. Mary's Hospital. Member of the American Ophthalmological Society and of the Monroe County Medical Society.



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P R E F A C E.

THE cases whose clinical history is given in the following pages have been under my care in the City Hospital,—all but one (case iii.) in 1867. The material has been small, which fact accounts for the fewness of the cases reported, but it has seemed to me that these cases have presented points of sufficient interest to merit my laying them before the profession in this form.

The whole number of in-patients who have been treated in the Ophthalmic Department of the Hospital during the two years ending December 31, 1867, is forty-one,—fourteen in 1866; twenty-seven in 1867.

The following is a classified list of diseases :

Conjunctivitis, acute catarrhal,	8
" granular,	11
" purulent,	1
Conical cornea,	1
Corneal staphyloma,	1
Choroidal "	1
Atrophy bulbi,	1
Diseases of the lid,	8
" " iris and choroid,	4
" " retina,	3
Cataract, lenticular,	1
" capsular,	1
Total,	41

79 STATE STREET, ROCHESTER, }
March 16, 1868. }

C. E. R.

CLINICAL OBSERVATIONS.

CASE I.—*Cataract ; modified linear extraction.*

DERICK K., Physician, aged 73 ; health good ; entered the City Hospital as private patient, June 14th, 1867. The cataract was first noticed in the right eye, four years ago. This had gradually progressed to maturity, while the other eye was so far affected by immature cataract at date of admission that he was unable to read or find his way about without great inconvenience. The eyeballs were of medium prominence, arcus senilis slight ; pupils large ; field of vision* normal.

June 15th. The cataract was extracted from the right eye, with the assistance of Dr. Moore, by v. Graefe's method—modified linear extraction. The following is from a translation of v. Graefe's original paper on this subject, and is extracted from the Ophthalmic Review, vol. iii. : p. 7.

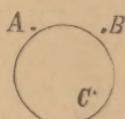
"The patient being placed on the couch, the lids separated by an adjustable speculum—I prefer the one recommended by Critchett—and the eye-ball drawn downwards by spring forceps, which are applied immediately below the cornea, the operation is commenced.

"STEP I. *The Incision.*—The point of a small knife, the cutting edge being directed upwards and the surface forwards, is

* The field of vision was tested in the following manner : The patient was placed in a dark room, and caused to look directly forward with the eye under examination, while the other eye was closely covered. A lighted candle was then moved in every direction throughout the field of vision and a few feet in front of the eye. Since the candle at no point disappeared, his field of vision was shown to be uninterrupted.

inserted at the point *A* (fig. 1), so as to enter the anterior chamber as peripherally as possible. In order to widen the extent of the inner wound, the point should at first not be directed towards *B*, *i. e.* the point of counter-puncture, but rather towards *C*; only when the knife has advanced fully three lines and a half within the visible portion of the anterior chamber should the handle be lowered, and the instrument directed along the scleral border, on to *B*. As soon as the resistance to the point is felt to be overcome, showing the counter-puncture to be accomplished, whether the uplifted conjunctiva be transfixated or not, the knife must immediately be turned steeply forwards, the back of it being almost directed to the centre of the ideal sphere of the cornea, when the incision is to be continued in this plane, first by boldly pushing the knife onwards, and then, after its length is exhausted, drawing it backwards. Should this latter movement, though generally sufficient, fail completely to divide the scleral border, the sawing manœuvre must to a less extent be repeated. As soon as the last bridge of the scleral border is cut through, the knife lies freely movable under the uplifted conjunctiva, which, in order to avoid the formation of too long a flap—the proper height is $1\frac{1}{2}''$ — $2''$ —must now be divided by a sawing movement horizontally forwards, or even forwards and downwards.

FIG. 1



“STEP II. *The Iridectomy.*—The holding forceps having been handed to an assistant, with a straight pair of iridectomy forceps—I use a very small pattern—we lift the conjunctival flap off the prolapsed iris; the former, merging as it does into the limbus, and there being, from the previous extensive loosening, no further resistance sideways, is easily reflected down over the cornea, when the iris appears perfectly bare. Hereupon the prolapse of the iris is seized with the same forceps at its central and most vaulted portion; it is gently pulled upon so as to make it present a triangular shape, and excised at its base from one corner of the wound to the other, to which end usually two slight strokes of the scissors are required.

“STEP III. *Dilaceration of the Capsule.*—The operator, having resumed the fixing forceps, now with a cystotome properly bent, and which is armed with a fleam, opens the capsule by two successive rents, beginning from the lower edge of the pupil, and ascend-

ing successively along its nasal and temporal margin, near to the upper equator of the lens.

“STEP IV. *Evacuation of the Lens.*—The mode of evacuating the lens varies according to the amount of soft surface matter. Where there is plenty of it, the delivery is, as a rule, effected without the introduction of any instrument, merely by external pressure. The back of a broad and moderately arched spoon is, close to the centre of the incision, gently pressed against the sclera, so that the wound is made to gape. Thus, cortical masses are caused to escape, and the vertex of the nucleus presents itself. In order to promote as much as possible the thorough exit of the latter, the back of the spoon is made to glide along the sclera, first with an equable degree of pressure laterally towards the corners of the wound, upwards with a continuous increase of pressure. If during these movements the diameter of the nucleus presents itself, the pressure is more and more abated, and the delivery may be completed by applying the end of the spoon to the projecting edge of the nucleus.

“STEP V. *Clearing of the Pupil and Coaptation of the Wound.*—If, as happens in the majority of cases, after extraction of the nucleus, cortical masses remain, they must be evacuated by gentle pressure and friction, exercised with the finger-ends through the medium of the lids, and in accordance with the well known rules for the same purpose observed in flap-extraction. Only in exceptional cases may a small spoon be introduced for the removal of isolated cortical fragments, which may be particularly adherent to the capsule. Very delicate coatings of the capsule, if their evacuation be difficult, are better left behind; but, on the whole, as complete a removal as possible of the cortex should be insisted on. Finally, the wound is to be cleared with forceps from any adherent iris pigment or coagula, and the conjunctival flap replaced in its proper position.

“Regarding the after-treatment I may be brief. The usual compressive bandage must be applied, and first renewed five or six hours after the operation, afterwards twice (or even once) a day. In regard to light, the habitual cautions must be observed. Rest is to be recommended, but less rigorously than after flap-extraction. If necessary, the patient may pass even the first days following the operation out of bed. Respecting the diet, everything may be

allowed excepting stimulants and such aliments as require mastication. From the second day I apply atropine (usually twice a day), chiefly to prevent coalescence of the two corners of the sphincter with the capsule. Only where copious conjunctival secretion either existed before or became apparent after the operation, I defer the application. If anything untoward occurs, a cautious yet accurate examination (always by artificial light) must decide whether it originate from the wound, the cornea, the iris, or the capsular cells, when the proper measures have to be taken in accordance with the customary rules. On the whole, departures from the normal course are but rarely observed."

The only difficulty met with in this case, was from the large size of the nucleus, which required that the incision should be enlarged about one line before the fourth step of the operation could be accomplished. The lens was evacuated by simple pressure without the introduction of any instrument. During the healing process some anxiety was felt in regard to a large fragment of capsule, which projected forward through the pupil and nearly touched the cornea, but which finally disappeared. The patient made a quick recovery, and four weeks after the operation could read common print with a No. 2 $\frac{1}{2}$ convex glass, and No. L., Snellen, at 20 feet with a No. 4 convex glass.

No anaesthetic was used, because the patient had pretty good control of himself, and by certain voluntary movements of the eye could assist me in some of the manipulations of the operation, and because I think it a well established fact, that the healing process is unfavorably affected by anaesthesia.

I had no hesitancy in choosing extraction in preference to depression, for reasons which are given by Liebreich, in the "Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques," t. vi., p. 479, and of which I have made the following translation :

" We reject displacement :

" 1st. Because its immediate result may be annulled, even after a perfectly exact operation, if the cataract ascends.

" 2d. Because the cataract may ascend after an indeterminate lapse of time, even if the immediate effect was complete.

" 3d. Because, of a certain number of given cases more are lost immediately after the operation by depression than by other methods. These losses are the result of an irido-choroiditis devel-

oped with symptoms which, sometimes remarkably affecting the general health, do not yield to any treatment, since the cause cannot be removed. This cause is found in the nucleus of the displaced cataract, which is not susceptible of absorption, and which, as soon as it touches such sensitive parts of the eye as the choroid and ciliary body, occasions a severe inflammation accompanied by violent pains.

"4th. Because such inflammation may supervene at any moment after an indefinite lapse of time, on account of change in the location of the nucleus, even if the operation and cure have been perfect.

"5th. Because the same cause which determines acute inflammations, *i. e.* the displaced nucleus, may, in other cases, destroy vision without inflammatory phenomena, either by detachment of the retina, or by a deep excavation of the optic nerve, which is developed slowly by augmentation of the intra-ocular pressure.

"6th. And finally, we reject above all displacement, because it may produce a sympathetic inflammation (either irido-choroiditis or amaurosis) of the other eye in the same way in which these grave accidents are developed after a lesion with the introduction of a foreign body into the eye. It is difficult to save the second eye, even by the extirpation of the eye operated on, and only when the extirpation is done in time.

"Up to the time when, for all hard and mixed cataracts, we had to choose between displacement and flap-extraction, it was justifiable, despite the risks just enumerated, to reserve displacement for all those cases where the chances of extraction were remarkably diminished by reason of general feebleness and marasmus, of the impossibility of the patient to remain quiet, of want of spontaneity in the movements of the eye, or of anomaly in the conformation of the lids. But since the modified linear extraction is still applicable in cases improper for flap-extraction, and has, even in the most unfavorable cases, better chances of a permanent good result than displacement, this latter ought absolutely to be abandoned forever by every conscientious operator."

Professor v. Hasner * says of displacement:

“ Operators are more and more convinced of its dangerousness, which cannot be avoided by modifications of any kind. The description of this operation will probably retain its place in many of the hand-books of the future. But finally it will be named in history among operative errors.”

Dr. Pagenstecher † says:

“ There is hardly an excuse for this operation (depression), since an eye subjected to it always bears within itself the germ of death, even if at first good vision was obtained.”

Mr. Dixon ‡ says:

“ No doubt cases occur in which *depression* perfectly succeeds; but I would most earnestly warn the student, who may have been struck with the showiness and apparent ease of the operation, against supposing that it is a sort of safe substitute for the perils of *extraction*. ”

“ The true test of the two operations is this: ‘what, at the end of the year, will be the condition of patients who have undergone the one or the other form of operation?’ · Who will have the better sight then? ”

Again he says:

“ The mischief that may have been inflicted on deep-seated structures cannot be detected; and it is only in the course of weeks or months, that a train of symptoms sets in, which, long after the operation, may terminate in utter loss of sight.”

v. Græfe § says:

“ If the ultimate, successful results of extractions be taken at 80 per cent., those of reclinations may be, at the outside, taken at 50 per cent.”

v. Hasner || says:

“ It may now be assured with a good deal of confidence that the results of extraction are nearly 30 per cent. better than the results

* Klinische Vorträge über Augenheilkunde, iii. Abtheilung, Prag, 1866, p. 387.

† Klinische Beobachtungen aus der Augenheilanstalt zu Wiesbaden Drittes Heft, 1866, p. 10.

‡ A Guide to the Practical Study of Diseases of the Eye, Phila., 1860, p. 325.

§ Ophthalmic Review, vol. i., p. 248, quoted from the Klinische Monatsblätter für Augenheilkunde, for April, 1863, p. 141.

|| Die Neueste Phase der Staar-Operation. Prag, 1868, p. 4.

of depression ; that is to say, if of 100 eyes operated on by extraction 90 are restored, only 60 are saved by dislocation. If we now assume that during 1700 years there were made yearly 5,000 operations for cataract, in all 8,500,000, the result has been about 5,100,000 cures, whilst extraction would have saved at least 7,600,000 eyes. Thus more than 2,500,000 of the blind have fallen victims to an operative error."

An English writer * estimates the successful results of operations by depression as low as 50 per cent.

To give in full my reasons for preferring the modified linear extraction to the ordinary flap-extraction would occupy too much space. I will say only, that the principal danger in flap-operations, *i. e.* the suppuration of the flap, seems to be much lessened by making the section in the sclera, that the facility with which the lens is removed is increased and the chances of exciting iritis lessened by the iridectomy, and finally, that the results of operations by this method, seem to have proved themselves more favorable than those of flap-extraction.

CASE II.—*Ophthalmia Tarsi; yellow oxide of mercury.*

EMMA B., age 17, entered the Hospital July 8th, 1867. The patient had had inflammation of the eye for about five years. Her general health was pretty good. Examination of the eyes showed the peculiar thickening of the lids observed in cases of ophthalmia tarsi ; the corneæ of both eyes rough, so that vision was much impaired ; there had been a perforation of the right cornea, and the iris was adherent to the cicatrix, forming a so-called synechia anterior. Great intolerance of light, so that the patient had to be led to the Hospital with the eyes covered with thick veils.

* J. Soelberg Wells, Med. Times and Gazette, March 23d, 1867.

Treatment consisted of the daily application of a small quantity of the following mixture :

R. Yellow oxide of mercury, 1 scruple.

Plasma, 1 ounce, mix.

The mixture was applied to the inner surface of the lower lid by a delicate spatula. The lids being allowed to close, it became mixed with the tears, and thus came in contact with the whole extent of the conjunctiva. In two weeks the photophobia had disappeared. At the end of two months the cornea had become so much restored that vision was nearly normal. An ointment made by the substitution of benzinated lard for the plasma, was then ordered. A portion as large as a grain of wheat was carefully applied to the edge of the lids at night. By the occasional use of this, any symptoms of recurring inflammation are speedily removed, and the patient now considers her eyes well.

I have cited this example of a very simple and common disease for the purpose of calling attention to the great therapeutic value of the yellow oxide of mercury, an agent comparatively little used in this country. It was first used in ophthalmic practice by Pagenstecher* of Wiesbaden, in 1856, who gives the following formula for its production :

" Add a solution of the corrosive chloride of mercury to a solution of potash in such a way that there is always an excess of the latter. After the precipitate has deposited itself, pour off the supernatant fluid, wash the precipitate with distilled water, and dry it with a gentle heat, excluding the daylight."

Thus prepared, the yellow oxide is a bright yellow, *amorphous* powder, while the red oxide is crystalline, and after never so long trituration still shows, under the microscope, its crystalline structure.

The plasma is made by mixing from 30 to 50 grains of starch with 1 ounce of glycerine and heating to 240° Fahr. In place of the plasma, simple cerate, benzinated lard, or the mixture of almond oil and butter of cocoa may be used. Great care should be taken that none of these substances be rancid, since the oxide is very easily decomposed.

If it were consonant with the purpose of this paper, I would

* Ophthalmic Review, vol. iii., page 115.

like to report a few of a large number of other cases occurring in my private practice, where the yellow oxide of mercury has yielded most admirable results ; but I will content myself with quoting the following from Dr. Pagenstecher's paper in the Ophthalmic Review :

" The ointment is indicated in conjunctivitis and corneitis phlyctenulosa, and all the allied and resulting forms of corneal disease. To avoid any misunderstanding, I will enter a little further into the symptoms and nature of this disease. At the risk of repeating what has been long known and universally accepted, I must give a short sketch, in order to indicate in what forms and under what conditions I principally recommend the use of the ointment. I consider conjunctivitis and corneitis phlyctenulosa, which have been called by different authors by the most different names, according to the views they took of their causes, as a purely local disease of the conjunctiva and cornea, as one and the same condition, which becomes modified secondarily by the constitution of the patient. The anatomical, typically characteristic form consists in vesicles, or pustules, on a basis of infiltrated tissue of the ocular conjunctiva ; they are developed mostly near the cornea at the limbus conjunctivæ, or, from the very commencement, on the cornea itself. These vesicles soon pass, as the epithelium gets destroyed, into raw surfaces, the surrounding infiltrations becoming removed, a loss of substance in the form of an ulcer thus ensuing. The morbid action varies extremely in its intensity ; so does the extent of surface denuded of its epithelium ; but a greater or less development of vessels is always observed as a concomitant phenomenon. The mode of arrangement of the vessels around the vesicle is somewhat peculiar : the vessels are all directed centripetally towards the vesicle. If the vesicle is on the ocular conjunctiva, the vessels run uniformly from all sides towards it as a centre ; but if the vesicle is at the edge of, or on the cornea itself, the vessels also run to it from the adjacent parts of the conjunctiva ; and thus aggregations of highly hyperæmic vessels are seen, which often rise above the level of the conjunctiva, whilst the rest of the conjunctiva exhibits comparatively few signs of irritation. If, on the other hand, the vesicles are developed more or less over the whole ocular conjunctiva, this latter may assume a more general redness. This may also occur if the vesicles form over the entire edge or surface of the cornea. As a rule, the formation of vesicles is limited to

the cornea only, when the conjunctiva had been previously affected. The dependence on and relation to the conjunctival disease of any given purely corneal vesicle is perceived in the higher degree of redness and vascularity of the corresponding part of the conjunctiva; a pointed triangular leash of vessels running beneath the corneal epithelium very often forms the connection between the vessels of the conjunctiva. As the vascularity gradually invades the greater part of the corneal surface, we get the form of disease described by authors as *corneitis vasculosa*, *serofulous pannus phlyctenulosus*. We very often see the disease represented by one single vesicle on the cornea, which runs the usual course, *i. e.* passes into an open ulcer, as the epithelium, separated by the fluid in the vesicle gets detached, after the vesicle has, as above remarked, become connected by a narrow leash of vessels with those of the conjunctiva. At the border of the ulcer next the edge of the cornea a fresh turbid swelling of the cornea ensues, and this, as it advances towards the centre, is continuously followed by the bundle of vessels, constituting one of the most obstinate corneal diseases, known as *corneitis fasciculosa*. These anatomical phases may, under certain circumstances, undergo further changes, either from local irritation, want of cleanliness, wrong treatment, or from constitutional predispositions, such as the lymphatic or serofulous erasis.

"Or from a continuance of such unfavorable circumstances, ulcers at first of very limited extent appear to spread in area, or even invade the deeper layers of the cornea, when we have to contend with *corneitis ulcerosa*, or *corneitis profunda*—forms to which the ointment is often inapplicable.

"In the above briefly indicated forms of *corneitis*, every practitioner will, I presume, agree with me in recognizing one and the same type of disease that acquires its special form from the different kinds of irritation or structures in which it has originated. In all these forms I assert the yellow oxide of mercury ointment is a certain and almost specific remedy.

"As regards the other inflammations of the cornea, no good effect can be observed from the yellow oxide of mercury. *Corneitis purulenta*, *blenorhoeica*, or *corneitis vasculosa*, originating in granular lids and trachomatous pannus, generally get worse under it. In syphilitic *corneitis parenchymatosa* it has no effect one way or

the other; but in the consequent obscurations of the cornea the ointment may be used, after all acute symptoms have completely vanished, to clear the cornea. If any iritis co-exists, the ointment must be studiously avoided, as well as in all deep infiltrations and ulcerations of the cornea."

CASE III.—*Injury of one eye; sympathetic ophthalmia of the other.*

JOHN A., aged 69 years, entered the City Hospital in December, 1865. Nine months previously he had received a blow upon the right eye-ball from a piece of wood while he was chopping. The injury was followed by severe inflammation, and in three months by loss of all perception of light in the right eye.

December 16th. Pain still very severe and nearly constant. As usual in such cases, it was referred to all the corresponding side of the head, as well as to the eye-ball. The cornea was slightly hazy and anaesthetic; pupil widely dilated and immovable; lens still transparent; vitreous so turbid that no view could be taken of the fundus with the ophthalmoscope; the eye-ball very hard.

With Dr. Montgomery, I attempted to make an iridectomy, but found the iris so hard, inflexible and leathery, that the iris hook, much less the forceps, could make no impression upon it, so that I made no further attempt. The pain, however, was wholly removed for fourteen days, undoubtedly because the tension of the eye was temporarily diminished by the paracentesis.

January 1st, 1866. The irritation of the eye having appeared again, and the other eye showing symptoms of sympathetic inflammation, I recommended the excision of the injured eye. To this the patient was unwilling to submit.

February 20th, 1868. I was called to visit the patient on Buffalo street. The eye had, during the last two years, remained irritable,

and at times had caused such agony that large doses of opium had been resorted to for relief. During one of the attacks of pain four days previous to my visit, the eye ruptured, the humors were discharged and followed by blood which had trickled away almost constantly since. The patient now wanted the eye removed, but, thinking his reduced state unfavorable for such an operation, I applied a compressive bandage which checked the hemorrhage. The lens of the other eye had become cataractous, so that no view could be taken of the fundus.

The enucleation of the injured eye in this case was recommended, because it is believed that the principle is now well established that "in injuries of the eye* which give rise to a lengthy irritation, particularly those involving the ciliary region, the injured eye should be removed, even though its fellow have not become affected, to avert intractable inflammation and danger of entire blindness."

CASE IV.—*Choroidal Staphyloma ; enucleation of the eye-ball.*

J. T., musician, age 33, entered the Hospital July 15th, 1867. In infancy had irido-choroiditis of both eyes, which destroyed the sight of the left eye, and so much impaired that of the right, that the patient finds his way about the streets with considerable difficulty only. For several years the eyes had remained quiet until two years ago, when an inflamed spot appeared in the ciliary region at the nasal side of the left eye-ball. This spot gradually protruded, the process being accompanied by considerable pain. Now there is a large staphyloma extending from the margin of the cornea far back into the orbit, and presenting a very disagreeable deformity. The pupil is entirely obliterated by plastic exudations. The iris discolored and almost in contact with the cornea.

* Dr. Derby in Boston Med. and Surg. Journal, vol. lxxi : page 269.

July 17th. Left eye-ball enucleated in the manner first used by Stoeber, of Strasburg, in 1841, and first in England by Critchett, in 1851. The patient was placed upon a couch and brought thoroughly under the influence of chloroform. The wire-stop speculum was used to keep the lids open. A small fold of conjunctiva near the margin of the cornea was seized with a pair of toothed forceps in the left hand, and cut with a pair of scissors in the right. A strabismus hook was then exchanged for the forceps, and the conjunctiva cut all the way around the cornea, then the ocular muscles close to their insertion into the sclerotic, then the loose cellular tissue between the sclerotic and the capsule of Tenon, and finally the optic nerve close to the eye-ball. Scarcely half an ounce of blood was lost during and after the operation. The dressing consisted of a fold of linen and a small bunch of fine charpie applied over the closed eyes, and kept in place with moderate pressure by a monocular bandage. The healing process was nearly completed in eight days, and an artificial eye inserted in four weeks.

In this case, two courses were open to me—the abscission of the staphyloma, or the enucleation of the globe. My reasons for rejecting the former and adopting the latter were briefly as follows:

The danger of hemorrhage after the opening of a diseased eye-ball is frequently very great. This is intimated by the result in case III., but is sometimes so serious as to necessitate the immediate removal of the globe, in order to save the patient's life. But even if this danger be avoided, the staphyloma often returns, and in any case the recovery is tedious, sometimes so tedious, and the reaction so great that as Mr. Power* expresses it, "both patient and surgeon find sufficient reason to regret that the globe was not wholly extirpated." Nor is time the only point of importance in the tediousness of recovery. A state may be induced in the eye operated on which will have a very detrimental influence on the other eye. Uncomplicated sympathetic ophthalmia in the other eye, we could not expect to see, because the eye was already so impaired by other disease, that the patient was but little better than a blind man; but it seemed to me that a morbid influence which could affect a sound eye, would certainly be apt to increase the trouble of an eye already diseased.

* Illustrations of some of the principal Diseases of the Eye. London 1867, page 269.

On the other hand, the enucleation of an eye-ball is not really so formidable, although, at first thought, it seems an operation of such magnitude that both patient and surgeon are loth to use it, except as a last resort. As formerly done, without anaesthesia and with the hook and knife, it was indeed an operation to be dreaded, but, as now performed, it is a different matter, and is said by Lawson* to be "one of the greatest improvements in modern ophthalmic surgery." By substituting the scissors for the knife, and keeping within the capsule of Tenon, the fascia of considerable thickness which surrounds the eye-ball, being only separated from it by loose, cellular tissue, severe hemorrhage and the danger of inflammation extending to the brain are almost certainly avoided. The ocular muscles being left, their extremities are drawn together by the cicatrix, and give considerable motion to the artificial eye at the same time that they form a bed for the substituted organ. Thus this operation is done with ease to the surgeon, and without pain or danger to the patient, and insures a rapid recovery, but more than all these, it guards against any result which might injure the other eye.

CASE V.—Corneal Staphyloma; obscission and removal of the lens.

FANNY W., age 11, entered the Hospital August 14th, 1867. Nine months previously had epidemic catarrhal ophthalmia, which was in time followed by staphyloma of right eye. The staphyloma includes nearly the whole of the cornea, only a very small portion of cornea at its outer side remaining transparent.

August 20. The staphyloma was removed in the following manner: Beer's Cataract knife was made to enter the staphyloma near

* Injuries of the Eye. London, 1867, page 275.

its base at the outer side, the cutting edge of the instrument being directed upward. It was then pushed through in a plane parallel with the base of the staphyloma, the section being thus completed. The scissors were used to complete the removal of the staphyloma. The lens, which was still transparent, was then removed. This was followed by a small quantity of vitreous. The dressing consisted of a small fold of linen, fine charpie and the monoculus. A good deal of irritation of the ciliary body followed, the other eye being quite intolerant of light for several weeks.

February 20th, 1868. The eye-ball is now reduced to about two-thirds its natural size, and would form an unexceptionable stump for an artificial eye, were it not for the irritability of the ciliary body. Pressure upon this portion of the eye-ball still causes acute pain.

Would it not have been better in this case to enucleate the eye-ball? Mr. George Lawson* says :

" For a complete staphyloma of the cornea, the operation of abscission is appropriate, as it should only be performed on those lost eyes in which it may be hoped that the fundi are healthy. Where there is pre-existing disease of the choroid or retina, deep haemorrhage is likely to follow the removal of the front of the globe, which may necessitate the immediate excision of the rest of the eye; or if the operation is completed, and the bleeding arrested, a troublesome suppuration of the stump is almost certain to follow. If the operation of abscission is properly performed, and the case does well, a good stump is formed on which an artificial eye may rest, and the deception becomes almost complete, for the natural fulness of the orbit is preserved, and the movements of the artificial eye in concert with the sound one are perfect. But, on the other hand, it must be considered that in leaving the whole of the posterior part of the globe, we have left behind a sclerotic cup, containing portions of the vascular tissues of the eye, the retina and choroid; and that those destructive changes which so commonly take place between these structures in lost eyes, after the lapse of many years, may also occur here, and eventually prove a source of much suffering, if not of actual danger, to the other eye.

" My own feeling is, that to the wealthy, where personal appear-

* Injuries of the Eye, London, 1867, page 98.

ance is a source of serious moment, the operation of abscission is most valuable, as the patient can keep a watch over the stump, and seek medical aid the moment any unpleasant symptoms arise; so that if, at any time, it should give trouble or become dangerous to the other eye, it can immediately be removed. To the poor, however, where safety stands so much before symmetry, and where neglect of early symptoms is the rule rather than the exception, it is better to remove the staphylomatous eye entirely, rather than to abscise the front of it."

CASE VI.—*Atrophy Bulbi; enucleation.*

Mr. S., age 24, entered the Hospital December 1, 1867. Eight years ago, the patient had inflammation of both eyes, during which he received a slight blow upon the left eye, causing a rupture of the cornea and total loss of sight in that eye. Ever since the left eye has been subject to attacks of acute inflammation, accompanied with great pain. At such time the other eye is weak and intolerant of light, but at other times sound. The greatest inconvenience to the patient was now from the deformity and these attacks of inflammation. Acute pain was, however, at all times experienced on pressing upon the ciliary body.

December 3. The left eye-ball was enucleated in the manner described above. Dissection of the enucleated eye showed a dark, watery vitreous, disorganization of the choroid and retina, a shrinking of the eye-ball to about two-thirds the normal weight, a cataractous and shrunken lens.

An artificial eye was fitted on the 30th of December, and has been worn without inconvenience since, and with admirable cosmetic effect.

CASE VII.—*Conical Cornea; iridesis.*

ALVIN W. E., aged 24, entered the Hospital November 27, 1867. Health always good; no hereditary tendency to disease known to exist.

About four years ago, patient noticed a peculiar disturbance of vision, difficult to describe, in the right eye on looking at a distant luminous object, *e. g.* a star, or a street lamp. One year ago, the same symptoms began in the left eye. With right eye counts fingers at two feet. No improvement by concave glasses. With narrow slit in a card counts fingers at twelve feet, and reads No. X., Snellen, at six inches.

With left eye reads No. C., Snellen, at twenty feet and 10, Jäger, at thirteen inches. Some improvement by the stenopæic apparatus,—none by concave glasses.

Careful examination with the unaided eye showed a bulging near the centre of the cornea of each eye, more considerable in the right. This was best detected by observing the reflection from the cornea of a window opposite the eye of the patient. Near the centre of the cornea, this reflection became much narrower than near the margin of the cornea showing that the radius of curvature of the central portion was shorter. The bulging could also be detected by a view in profile of the eye; but this was less easy than the other method. The most satisfactory evidence was obtained by the use of the ophthalmoscope. On turning the concave mirror so as to throw light at different angles, the side of the cornea opposite to the light was darkened. A tolerable view of the fundus could be obtained, but no disease there was detected. The tension of both eyes appeared to be normal; both pupils rather large; corneas perfectly transparent.

Before resorting to more energetic means, I decided upon a method of treatment which had been followed in at least one case by a good result. It consisted in paracentesis of the cornea followed by the compressive bandage. I did this on the right eye only. A broad needle was caused to penetrate the cornea near its outer margin. The needle was then withdrawn, and a fine probe used to depress the lower lip of the wound, the aqueous humor slowly dripping away. Fine charpie was then placed over the closed lids in the depression around the eye-ball, and finally in front of the ball. A very firm pressure was then exercised by a bandage of

fine flannel one and a half inches wide and four yards long. The charpie and roller were applied to both eyes, so as to keep both eyeballs as immovable as possible. At the end of four days the bandage was removed. No apparent benefit resulted.

December 3. An iridesis was made on the right eye in the following manner: A broad needle was caused to penetrate the cornea close to its lower margin. The blunt iris hook was then introduced and the iris caught at its pupillary margin, and drawn out and confined there by a loop of fine silk manipulated by an assistant.

The pupil thus assumed a balloon-shape, and retained it contractility. After three days the thread came away, and after ten days all irritation had subsided. Vision was considerably improved, the patient being able to count fingers with the right eye at 12 feet.

February 19th, 1868. Iridesis done on the left eye with some improvement, but less marked than in the other.

The treatment of conical cornea has not generally been all that could be desired, and this fact has led to the trial of the greatest varieties of medical agents and surgical operations. It is now pretty generally conceded that medical treatment of conical cornea is in most cases useless. Of the surgical operations for its relief there seem to be but three which are worthy of trial. The first is paracentesis followed by pressure. The second is iridesis, either single, as done in the case above, or double, as recommended by Mr Bowman*, of London. Mr. Bowman has reported several cases in which the double iridesis (iriddesis or iridodesis) produced marked improvement in vision, and lessening in the conicity of the cornea. The third method of operation is that proposed by v. Graefe.† He procures an ulceration of the apex of the cone by slicing off a portion of the cornea without penetrating the anterior chamber and touching the part with nitrate of silver at intervals of two or three days. The perforation is finally filled up by cicatricial tissue, which restores the cornea more nearly to its normal curvature.

* Ophthalmic Hospital Reports, October, 1859, page 154, et seq.

† Archiv für Ophthal. xii : 2, pages 215-222.

